

BANJO FACTS



A complete Guide, dealing with every point regarding Testing, Valuation, Care, Adjustment and Upkeep of the Instrument, and its accessories. - The writer condenses years of practical experience into this small volume.

One Shilling



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By

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PREFACE

By BYRON DAVIES.

This is no journalistic product of "filling space"—of writing so many thousand words. No, it is the unstinted revelation of a man's unique experience: in these pages Mr. Sharpe tells all he can recall from day-to-day experience, and he gives the results of that experience, his knowledge and judgment for the benefit of the vast Banjo fraternity with which he has surrounded himself. If any booklet deserved reading several times it is this: it took years to compile, but only about a week to write.

I have seen A. P. Sharpe "in action" on many occasions: I have seen him buying instruments. He appraises their value more quickly than any woman could assess the value of another's garments: he is quicker than the diamond merchants of Hatton Garden. In one quick glance he knows whether the answer is "Yes" or "No," and if it be "Yes," then, it would seem that the "points" of the instrument seem to talk to him! I could no more imagine him making a mistake, or as the phrase has it, of "being caught" than I could imagine a caterpillar driving a steam-roller. Here, in this little booklet, he reveals what he looks for, so that you, too, may avoid the "being caught" process.

It would seem that there is hardly a point that "A.P.S." has overlooked: without loss of words or space, he condenses "infinite riches in little room": he gives as much, or more guidance to the square inch as you will find anywhere. This booklet, too, is issued at a price which all can

afford : few enthusiasts can afford to be without it. The National Society of Banjoists, in fact, is proud of having arranged for A.P.S. to write it : we feel we are doing a service to Banjoists in publishing it.

I wish that I had years ago received the hint to file, instead of cut my finger-nails. One of our members, Mr. Russel Pizzey, of Bristol, gives a useful hint, and says "Some Zither Banjoists are troubled with nails splitting. This, I am given to understand, is caused by excess calcium in the formation of the nail. Dress the base of the nail with olive oil as frequently as possible. It is a long job, and in the meantime you could apply a spot of 'Durofix' or similar cement to the split, and press down with a *wet* finger. It will stay there for a couple of days and, will then have to be renewed, but it prevents the split lengthening, and it enables the player to 'carry on' while the olive oil is correcting the trouble. If olive oil is unobtainable, substitute castor oil."

I now commend Mr. Sharpe's present contribution to the Society's literature to your consideration, and as a sequel to it you will be interested in the details we give of our activities, if you are not already a Member. "A.P.S." has been one of the Society's keenest supporters, right from the time when it was merely a "thought," and we value very highly the wisdom and good counsel he has given us in our uphill task of "bringing back the Banjo to the amazing popularity it enjoyed some thirty or forty years ago."

Banjo Facts



CHOOSING A BANJO.

IT would be safe to assume that if you are buying a well-known make of banjo direct from the manufacturers, the instrument would be in perfect playing order. But it is not every player (and would-be player) who can afford to buy a new instrument—and here it might be said that many second-hand banjos have given their purchasers a lifetime of service.

How can one tell if an instrument is worth buying? What should one look for (and at) when buying an instrument which is not new?

Answering these two questions involves many things. On paper it may look a little bewildering, but careful attention to the points raised will prevent any after-purchase regrets.

The most important thing to consider is—is the banjo playable? Reference to the section of this book devoted to the care of the banjo will show many little points to look for: correct set of arm; a bridge of the correct height; perfectly slotted nut; pegs (or machines) in perfect working order; etc. Some defects in a second-hand banjo can be easily remedied, but major defects apparent to the eye are worth detecting and another less-defective instrument sought.

Let us assume that you do not yet play the banjo. You have in your hands an instrument you are considering buying. First of all, look at the bridge. Is it approximately $\frac{1}{2}$ inch high? If it is the correct height, look at the lie of the strings along the fingerboard by holding the instrument at eye level, so that the strings are in line with the fingerboard. At the twelfth fret they should be about $\frac{1}{4}$ inch above the fingerboard.

Next, hold the tailpiece-end of the hoop to the eye and look down the entire length of the fingerboard towards the peg head. Is the fingerboard "twisted"; i.e., one side higher than the other? (Do not mistake the intentional "dip" halfway up the fingerboard as a "twist.")

Now look at the frets. Are they badly worn? It is impossible to play properly on a banjo that needs re-fretting.

Are the pegs really "non-slipping"? If loose, perhaps a short turn on the fixing screw will put the matter right. If the instrument is fitted with a machine-head, look at the cogs. Are they worn, or perhaps have torn teeth? Are the buttons broken? Do the barrels (round which the strings bind) look rough and flimsy?

Now turn the instrument over so that you are looking at the back. Where the arm joins the hoop (the "heel") make sure there is no space between the heel and the hoop. It should be impossible to slip a thickness of paper between.

If the banjo is an open-back type (with or without resonator) look at the wedge-plate. (The wedge-plate is the V-shaped piece of metal fixed to the perch pole.) Is this securely fixed? Are the wedges tightly hammered home?

Apart from the obvious defects, like broken woodwork; missing brackets; or eyesore marks caused through ill-usage, there is little else to look for.

The above questions being answered in the obvious way, the only thing remaining is a question of price.

It is difficult to assess a fair price for a second-hand instrument as so much has to be taken into account—age of the banjo; general condition; the kind of case that goes with it; etc.

As a guide, if the banjo is in good playing order and condition, and the case is a fairly good one, then two-thirds of its *new* price is reasonable.

THE CARE OF A BANJO.

Of the thousands of banjos that have passed through the writer's hands, only a small percentage have been kept in really good playing order.

A banjo—like all musical instruments—can only give of its best when it is accorded the treatment it deserves. Time taken in keeping a banjo in tip-top condition is amply repaid in the better music it produces and the satisfaction of knowing that it is treated as a well-loved companion should be.

One golden maxim is : *always* wipe the strings after playing—no matter if the "playing" only amounts to a few minutes of running over the strings. Most banjo cases have a small pocket fitted to them (usually cluttered up with pieces of broken strings and empty string packets). It is advised that a small piece of cloth be kept in

a tin in this pocket. Slightly damp the cloth with a fine machine oil, and after every playing, wipe each string in turn with the cloth. Be sure to wipe *under* the string as well as along the top.

At least once a month go along each side of each fret with a pointed matchstick and remove the dirt and grime clinging to the fingerboard. After the dirt has been removed, wipe the fingerboard with the piece of oily rag mentioned in the preceding paragraph.

Once every six months, drop a spot of fine machine oil on each cog of the machine-head.

When fitting new strings, run an old wire 1st string through the slots in the nut to remove any traces of rust. (Rust in nut slots will cause "binding" of the strings and lead to the banjo going quickly out of tune.)

Keep all metal work bright by an occasional clean with a proprietary polish made specially for the job. Give all woodwork (including the fingerboard) an occasional polish with a good furniture cream.

Keep the vellum at a proper tension. The vellum should just "give" from the pressure of the thumb. Never tighten a vellum in damp weather, and never loosen a vellum "because you won't be using the instrument for a week or two."

When not in use, *always* keep the banjo in its case. Banjos are susceptible to draughts and damp atmospheres. Try to keep the instrument in a room which is dry and well ventilated.

DIFFERENT BANJOS.

At this point it may be interesting to discuss the various banjos—and their modes of stringing and playing.

First of all there is the *banjo* proper—a five-string instrument with (usually) 11-inch hoop, open back, and side octave string.

This instrument is always played with the right-hand fingers; the tips of the fingers being used to vibrate the strings.

The type of strings to use on this instrument depends a lot on individual taste, but as a guide here are some suggested “sets.”

“Silvering” 1st; “Tropical” or gut 2nd; “Tropical” or gut 3rd; Silk-covered 4th; “Tropical” 5th.

“Silvering” 1st; “Silvering” 2nd; Wire-covered 3rd; Wire-covered 4th; “Tropical” 5th.

“Tropical” 1st; “Silvering” 2nd; Gut 3rd; Silk-covered 4th; “Silvering” 5th.

(N.B.—A *plain* wire third should *never* be used on any banjo. Not only does the tone of a plain wire third offend the musical ear, but these strings are apt to “pull” the arm of the banjo out of true.)

Next we have the *zither-banjo*. This instrument has a smaller vellum than the banjo (it can be anything from 7 inches to 10 inches in diameter) and has a closed-in back and is invariably fitted with machine-heads instead of non-slip pegs.

The *zither-banjo* is tuned exactly the same as

the banjo, but the usual stringing is either "Silvering" 1st and 2nd, Wire-covered 3rd and 4th, and "Silvering" 5th or a "Tropical" (or gut) 3rd and Silk-covered 4th replacing the two wire-covered strings.

The instrument is played with the right-hand finger nails which is so characteristic of the Cammeyer school of playing.

The *plectrum-banjo* is an instrument like the banjo but minus the short octave string. As the name implies, it is played with a plectrum.

Two suggested stringings are:—

"Tonal" 1st and 2nd; Wire-covered (or stout gut) 3rd; Wire-covered (or silk-covered) 4th.

The fourth member of the solo banjo family is the *tenor-banjo*. This instrument was evolved in the early '20's so that violinists could play the then-popular dance band instrument "the banjo."

The tenor-banjo has a shorter arm than any of the other three banjos and it is tuned to the pitch of the viola. (The viola is a *tenor* violin; hence *tenor-banjo*). The instrument is played with a plectrum and proper tenor-banjo strings should be used.

THE HANDS.

Professional banjoists take as much care of their hands as front-rank violinists or pianists, but the ordinary player cannot hope to keep his hands in the same condition as the professional—even banjoists have to work—but there are certain elementary rules on the care of the hands that everyone can follow.

When the playing of the banjo is first at-

tempted, the left-hand finger-tips are inclined to become sore. There is only one way to overcome this; more and more playing! In time, it will be found that the finger-tips are developing hard corn-like coverings, and no discomfort will be felt once these appear.

The finger-tip player will likewise develop "corns" on his right-hand fingers through constant playing. Once these are acquired, even hours of playing will not cause undue discomfort.

The zither-banjoist will have to take great care of his right-hand finger nails. Never cut the nails with scissors. Always use a file to keep them the right length, and file *under* the nails so that each individual nail has a slight taper.

It is difficult to say how long the nails should be for successful playing of the zither-banjo, but a guide can be given. Hold the right hand (palm towards you) in front of the face so that the finger-tips are at eye level. The nails should just show over the finger-tips as perfect half moons.

In hot weather many players suffer the discomfort of perspiring hands. Not only is this detrimental to good playing, but perspiration causes strings to rust and metal-work of the instrument to become discoloured.

At home, the remedy is obvious—constant washing and thorough drying, but when playing away from home another remedy is needed. Keep a small bottle of formaldehyde (1 part) and water (25–30 parts) in the banjo case. Before starting to play, pour about twenty drops of this solution into the hands; rubbing them together until friction makes them perfectly dry. (Formaldehyde is a powerful antiseptic and

hardener and is obtainable from chemists.)

Remember! The hands are the means of producing music from your banjo. They are worth a little attention.

“BUZZES.”

At some time in a banjoists's career he will find that an unpleasant “buzz” emanates from his instrument during playing. It may be easy to locate (and correct)—especially if one knows where to look and what to look for.

One of the most frequent causes of unpleasant buzzes is a loose part of the banjo vibrating in sympathy with a struck note. Look at the brackets. Is every nut tight? Are there any loose screws inside the hoop? Perhaps one of the small washers on the non-slip pegs is loose! Perhaps a button is loose on the machine-head!

If a careful and thorough inspection of the obvious parts fail to trace the cause of the buzz, the player should take a systematic look over the whole of the instrument.

Perhaps the slots in the bridge have become widened, or perhaps fitting a new string of a slightly thinner gauge is the cause. The remedy is a new bridge.

Are all the strings fitting nice and tight in the slots of the nut? The slots should be just wide enough to allow the strings to slide through when tuning. Perhaps the nut slots have become worn and are now too deep. These slots can be tested in the following manner. Strike each *open* string in turn. If one of the strings

produces a buzz, slip a small piece of paper in the nut slot and then replace the string. Does this remove the buzz? If it does, a new nut is indicated, although the piece of paper can be used as a temporary remedy.

Perhaps the buzz is only caused when fingering the banjo! Taking each string in turn, stop the string at each fret until the buzz is found. In this case the cause of the buzz is a "sprung" fret. Look carefully at the next fret higher to the stopped fret. Lay the arm of the banjo on a flat surface and carefully tap the "sprung" fret with a hammer—do not hit hard, a few slight taps should be sufficient.

No extraneous noises on the banjo are without a remedy. It may take a long time to trace a foreign-sounding buzz, but once discovered the remedy is usually obvious.

Nothing is more irritating to player or listener than weird noises not a part of the music. It is better to give up an hour or so's playing to remove any such irritating buzzes.

PLAYING IN TUNE.

The possibility of playing in tune—or out of tune—owing to lack of attention to the left-hand fingering is a matter to which little or no attention is paid by many otherwise good players. Doubtless many who read this will at first think it is impossible to play out of tune on a *fretted* instrument like the banjo. However, let any player who is sceptical on this point finger a note on the fourth string round about the seventh fret. Let him first play the note by pressing the

left-hand finger *towards* the bridge. Then—fingering the same note—let him press the finger back towards the nut. A considerable difference of pitch will be noticed. The first note (owing to the string being slightly loosened on that part of it between the pressed note and the bridge) will be somewhat flat to the second note, when the sounding part of the string was tightened.

From this it will be seen that all fingered notes can be given slight variations in pitch by careless fingering.

The only *correct* position of the left-hand finger-tips is *immediately* behind the frets (not *on them*—as some beginners seem to think) and a good firm pressure should be applied.

Bearing the above in mind, it will readily be seen that if the left-hand fingers are first pressed in the direction of the vellum and then in the direction of the peg head after the string is struck, a *vibrato* is produced.

Many professional players (especially exponents of the zither-banjo) use this to great effect, to be compared with the vibrato of the front-rank players of the violin.

The vibrato can be used in chords, but it is most effective in playing single notes—especially on the third and fourth strings.

THE BANJO VELLUM.

It is no exaggeration to say that the most important part of the banjo is the vellum. The vellum is the part of the instrument that turns string vibrations into music. Too much importance cannot be given to it.

The best vellums are made from calf skin. Avoid like the plague, goat-skin vellums. A calf-skin vellum is easily identified by its smooth skin-like look. A goat-skin vellum has an oily appearance and is seldom white in colour.

For too long it has been a fallacy that an all-white vellum is the best. Calf-skin seldom—in its natural state—comes in pure white sheets, and to make it white the raw skin has to undergo a “bleaching” process. With care, this process does little harm to the skin, but *some* harm it must do. Perhaps it is because an all-white vellum *looks* better that some players prefer them (although as every vellum must become soiled if the banjo to which it is fitted has anything like constant use, the choice is a moot point) but undoubtedly a “cloudy” vellum often proves to be the better for tone, while such a vellum will undoubtedly give longer service because the “cloudy” parts of the skin do not absorb atmospheric moisture as does the “bleached” vellum.

The points to look for when buying a new vellum are: even thickness, absence of “veins” in the skin, and a smooth texture. A thick vellum will give a tubby sound to the tone produced (the “gutty,” “throaty” sound of the true banjo) while a vellum bordering on the thin side will produce a bright, “snappy” tone. The thinner vellum is apt to burst more quickly than one bordering on the thick side.

The banjo vellum should be as “hard as a board”—just “giving” to the pressure of the thumb.

Banjo vellums can be bought already stretched

on a wire, ready for fitting, but the drawback here is that the new vellum must be an *exact* fit. An $\frac{1}{8}$ inch too big or too small will make it impossible to fit.

The easiest (and cheapest) way to buy vellums is to purchase an unstretched skin and fit it to the instrument yourself. Any banjoist can re-head his instrument if certain elementary rules are carried out and reasonable precautions are taken. The larger the vellum the easier it will be found to fit, but three inches larger than the vellum-wire is ample.

The first thing to do is to strip one's instrument—and the player might find this a good opportunity to clean all plated parts, etc.

Have four to six extra-long tension bolts and nuts handy, as these will be of great assistance in assembling the rim and bezel with the new vellum. These extra-long brackets are not absolutely necessary; they merely make the job a little easier.

Soak the unstretched vellum thoroughly in cold water until it is soft enough to be rolled up without tearing. (About five minutes should prove to be sufficient time.) Then lay the wet skin (underneath side downwards) on a soft, clean towel or cloth and roll up so that the towel or cloth absorbs all superfluous water. (The underneath side is the rougher side—the side on which the supplier's name is often stamped.)

Then lay the skin on the banjo hoop. Fit the vellum wire in its normal position on the hoop (over the vellum) so that it lies about an $\frac{1}{8}$ inch or a $\frac{1}{4}$ inch down the rim and lap the vellum over it so that the top-band (bezel) can be put on the hoop. An alternative method would be to lay

the vellum wire on the vellum and lap the vellum over the wire, putting the top-band in position on top all the way round. Then the vellum (with the top-band still in position) can be placed over the hoop. If the latter method is adopted, the centre of the vellum should be pushed down to allow for subsequently pulling down.

Next fit the extra-long tension bolts—one each side of the handle; one each side of the tailpiece; and one in the centre of each side of the hoop. Tighten the nuts so that the top-band (bezel) is just held in position.

Then, with a flat-nose pair of pliers (or even the fingers) pull the surplus up under the top-band so that all slack on the face disappears and no wrinkles show on the vellum wire.

See that the vellum is then level on the hoop (not necessarily taut) and lay aside in a cool, dry place for not less than 24 hours—longer if possible—to ensure that the vellum is dry. (The skin under the top-band will take longer to dry than the exposed surface.) *In no circumstances should artificial heat be used to dry the vellum.*

When the skin is thoroughly dry, trim off the surplus vellum just below the level of the top-band. Remove the vellum from the hoop and sprinkle a little french chalk on the inside flange formed by the hoop. (This helps when later lightening the vellum to playing tension.) Replace the vellum on the hoop, and fit all the normal brackets and nuts.

PLECTRA.

There is no doubt that fully 50 per cent. of banjoists today use a plectrum, but few of these players realise that the art of using the plectrum is as important as the art of using the bow is to the violinist, 'cellist, etc.

Correct use of the plectrum requires persistent study, whilst the left hand must work in conjunction with the plectrum's manipulation by the right hand.

The plectrum is not a product of the dance-band; plectra were in use circa 1500 B.C., but these were usually made from a quill or cherry-wood. Today the best plectra are made from tortoiseshell—and can be bought in every shape and size it is possible to imagine.

It is difficult to give advice on the choice of a plectrum for "what is one man's meat is another's poison," but a few tips on plectra in general may not come amiss.

If one can go by what the average *professional* player of the banjo uses, the best plectrum is one about 1 inch to $1\frac{1}{2}$ inches in length and from $\frac{1}{2}$ inch to $\frac{3}{4}$ inch across the widest part—but players with a large hand will find it better to use one a little bigger, while the player with a small hand will, obviously, find it better to use a plectrum slightly smaller. The firm which specialises in accessories for the fretted instrument player will have a variety of picks from which to choose.

Some players cannot "make headway" with a tortoiseshell plectrum (perhaps because they have not persevered with it) and find it easier

to use one made from celluloid (marketed under various trade names such as ivorine, vulcanite, erinoid, etc.). Whilst there is nothing against the use of such plectra, it cannot be over-emphasised that these plectra wear quickly—and that is far from good from the player's viewpoint as he is constantly finding it necessary to use a "new angle of approach."

Good tortoiseshell plectra are highly polished and are sold already bevelled. Thicknesses vary, and good advice to any plectrum-banjoist is to find a pick perfectly suited to his playing *and then cease to use it*. The *perfect* plectrum should always be used as a pattern when buying a new pick. It takes a long time for a tortoiseshell plectrum to wear away—but wear away it does. If a *pattern* is kept the player can be sure of getting an identical pick every time he purchases a new one.

Do not be constantly experimenting with different shapes, sizes and thicknesses of plectra. That way leads to discontent and shoddy playing. Find a plectrum which suits you and your style of playing and stick to it.

Tortoiseshell plectra can be kept in tip-top condition by an occasional rub on *very fine* emery paper—giving a final polish to the bevel surface by a rub or two on a chamois leather nail polisher.

It cannot be over-emphasised that the playing edge of a plectrum should be highly polished. A rough edge will not only tend to "catch" on the strings whilst playing but make it hard work for the player. No banjoist has yet succeeded in producing a nice smooth tremolo with a pick that had rough edges.

Remember, the banjoist's plectrum is as important as the violinist's bow. A first-class violinist will often pay as much for a bow as he does a violin. Plectra for the banjo only cost a fraction of the price of a good banjo—but because they are so comparatively cheap does not mean that their importance should be overlooked.

THE FRETS.

The frets on the banjo are important. It is these that make or mar the instrument.

Fretting is usually made of German silver—or to give it its trade name, white brass. Frets are “soft”—otherwise they would cut into the strings and quickly cause them to become indented and worn. Frets that are suffering from excessive wear are detrimental to tone and make playing a nightmare instead of the pleasure it should be.

Most fretted instrument firms undertake re-fretting, but as there are many players who would prefer to do the job themselves, here are a few hints on “how to go about it.”

First of all it should, perhaps, be mentioned that fretwire is made in the shape of a letter **T**. Contrary to popular belief, banjo frets are not glued in; they are merely hammered into place.

When you buy a length of fretwire (it is usually sold in yard lengths) the first thing to be done is to serrate the upright of the T by short, sharp taps with the chisel-edge of a hammer.

Next remove the worn frets from the banjo fingerboard. Go about the job in this way. With a fairly stout penknife laying parallel to the fret

you wish to remove, slip the edge of the blade underneath the side of the fret and *lift*. In no circumstances should any attempt be made to *slide* the fret out of its groove. If this is done, the slot will become enlarged and it will be impossible to fit a new one.

With the banjo arm laying flat on a table (suitably padded with an old duster or two to prevent it damaging either the table or the arm) lay a piece of the new fretwire across the fingerboard (over the slot) with the serrated edge downwards. Then tap gently into position with a hammer. Don't use force. A few gentle taps should be enough to drive it into position. It will be found that the serrated edge holds it into position.

Then, with a three-cornered file, cut the fretwire close to the edge of the fingerboard. Finally, with a fine flat-face file, smooth the ends of the fret so that no rough edges protrude.

Repeat the process for the number of frets you wish to renew.

Once all the new frets are in position you should get a steel rule (or other perfectly level straight-edge) and lay on the length of the fingerboard to see that no single fret is higher than its neighbour. If it is found that a fret is too high, a gentle tap with the hammer or a slight rub with a piece of emery paper will correct it.

BRIDGES.

The different kinds of banjo bridges on the market are legion. Some bear that magic name "patent," and the makers put forward elaborate

claims for their products. Other makers are merely content to say that their's is "the best."

Like the violin bridge—which has varied very little in hundreds of years—the banjo bridge has altered in very few details for the past half century, so perhaps we can assume that nothing better can be found. It is unlikely that manufacturers specialising in such things as banjo bridges have *not* tried various experiments to find a better bridge.

Before we talk about the different kinds of bridges, let us make one point clear—a point which the writer would engrave on every banjo if he had his way. **THERE IS ONLY ONE CORRECT POSITION FOR THE BANJO BRIDGE**, and that is at a point on the vellum which is the same distance from the twelfth fret as the twelfth fret is from the nut! In other words, with a piece of string measure the distance from the inside edge of the nut to the twelfth fret, then take the same distance from the twelfth fret to the vellum—and that is the position for the bridge!

Bridges have been made from every kind of wood; from ivory; metal; and every other substance you can think of—but the best banjo bridges are made from straight-grained maple. Some maple bridges have an ebony strip inserted in the top of the bridge while others have the whole of the top made from ebony. The idea behind this is that as ebony is a "hard" wood the side pressure of the strings will not "slice" it. In theory it is a good point, but in practice the ebony tends to dull the tone of the instrument.

The best banjo bridge is one made wholly from maple, as thin as it is possible consistent with the strength necessary to withstand the pressure (from the top and side) of the strings.

For the banjo and zither-banjo the ideal height of the bridge is $\frac{1}{2}$ inch (if you find a *lower* bridge is necessary, the arm needs re-setting) and for the plectrum-banjo and tenor-banjo, $\frac{5}{8}$ inch.

Every player should experiment with different types and makes of bridges until he finds the one that best suits his instrument, for no two banjos give of their best with the same bridge. A certain bridge on one instrument will make the tone bright and snappy, while the same bridge on another instrument will give it a dull, woolly tone. If better tone is the result of experiment, the time spent is well invested.

STRINGS.

We have already touched on the matter of strings, but there are a few more words worth saying on the subject.

First, may we ask a question? Do you know how to fit a string correctly? Of course, *you* do, but it is surprising how many players go through their playing life without ever learning how to do it.

Let us assume that you are fitting a new string. First remove the old string (making sure that no loose ends are left in the hole of the peg or on the tailpiece hook).

Fix the end of the new string to the tailpiece, pass the string under the pressure bar and over

the bridge and then through the slot in the nut. Now pass the end of the string *once only* through the hole in the peg or machine head until it is fairly taut. Now bring the *end* of the string back towards the fingerboard and pass it under the length of the string twice. Then, holding the loose end of the string *away* from the peg head, proceed to tighten the string until it is at pitch.

Now cut off the surplus string with a pair of pincers or pliers, for nothing looks more untidy than pieces of strings dangling from the peg head.

If you have just fitted a "Tropical," gut, or silk string, pass one of the right-hand fingers under the entire length of the string from bridge to nut; pulling the string *away* from the fingerboard in the process. This will help to take out any "stretch" and aid the string in its process of "settling down."

It is often a good point to tune a new string slightly sharp; bringing it into tune by pulling the string away from the instrument.

"False" gut strings can often be used by putting the end at first fitted to the tailpiece through the peg (or vice versa). Here is a tip or how to tell if a string is false *before* fixing it to the instrument.

Uncoil the string and hold an end in each hand; pulling it fairly taut. Then, with a finger of either hand, give the string a pluck and watch the string vibrating. If you can see "two" strings gradually meeting, the string is true. If there appears to be a indeterminable number of strings, the string is false. You can discover

exactly which *part* of the string is false by shortening the vibrating length held between the two hands and plucking again. Test in this manner from both ends and the false part will soon be found. Once it is found, it can be rubbed down with fine glasspaper.

When wire strings become rusty (which they should never do if the instructions for wiping with an oily rag given earlier in this booklet are carried out) they should be discarded. If gut strings become dry and brittle, they can no longer produce musical notes and should be renewed. If the covering of wire-covered or silk-covered strings become worn through they are no longer of use.

Always keep the banjo tuned to pitch. Never "let the strings down" after playing. A banjo is as temperamental as a prima donna and constant pulling up to pitch and lowering of the strings will cause the instrument to "sulk." A banjo will produce its best tone when it is constantly played upon at the correct pitch.

Spare strings should be kept in small boxes. Changes of atmosphere are not good for strings. Keep wire strings wrapped in tissue paper; gut strings slightly oiled and in airtight boxes, and "Tropical" and silk-covered strings wrapped in dry paper.

NEVER buy "cheap" strings—they are the dearest in the end. Only buy strings from reputable firms who deal in fretted instruments. It is better to buy strings through the post from a reputable firm than buy cheap strings with "unknown" names from a local music shop (which sells anything from a jew's harp to an accordion), the proprietor of which probably

doesn't know the difference between a banjo 1st and a tenor-banjo 4th, and acquired his stock through a persuasive traveller "telling him the tale." Such a shop has only one aim, the realisation of the profit it had in mind when it placed the order for the strings in the first place.

BANJO MUTES.

Every player of the banjo who knows the meaning of the word expression (if only there were more!) has at least one banjo mute in his instrument case. What can be more effective than an *andante* passage played *con sordini*—and in case the reader is wondering just exactly what that means, perhaps we had better explain that it means a slow movement with expression with mute on!

Mutes always operate on the bridge of the banjo—they can be an integral part of the instrument (put "on" or "off" either by means of a hand-operated lever or by pressure of the instrument against the player's body)—or be separate pieces of mechanism applied to the bridge at will.

Many mutes have been designed on the violin-mute principle—a three or four-pronged V-shaped mute which slips on the top of the bridge—and made from bone, or metal. Other mutes have been merely wedge-shaped pieces of metal which have been placed under the bridge between the vellum and the top of the bridge itself.

The most popular mute is one made from two pieces of metal (the width of the strings at the bridge) with a piece of felt in between. The two

pieces of metal are kept in position by two small screws. Fixed over the strings behind the bridge, the mute can be put into the "on" position by a flick of the right hand and "off" in a like manner. Ken Harvey used one of these mutes.

Joe Morley used a mute which was unique. It was merely a medicine-bottle cork which he placed under the feet of the bridge *under* the vellum between the perch pole and the vellum itself.

The banjoist who experiments with different types of mutes for varying effects will derive greater enjoyment from his rendition of different solos, while a mute will be found an asset when practice is inclined to annoy other members of the household.

MAKING AN ELECTRIC BANJO.

Perhaps it is not surprising that the advent of the electrical music instrument has caused many banjoists to think about the electric banjo. Ken Harvey produced many wonderful results on his electric banjo when he was appearing in this country, and since those days the number of electric banjos in use has steadily increased.

The construction of an electric banjo is not a difficult job, and for the benefit of anyone wishing to attempt it, full instructions are given.

Before explaining how to make the pick-up unit, perhaps an explanation, in non-technical terms, of the principle of all electrical instruments would not be amiss.

If a coil of insulated wire is placed round a

pole-piece of a permanent magnet, and the magnetic field thus created is disturbed, an electric current will be created in the coil. The strength of the current depends upon various factors: such as the number of turns of wire forming the coil; the strength of the magnetic field, and how it is disturbed.

Therefore it will be seen that the string of a musical instrument passing through the magnetic field creates this disturbance when it is plucked or struck with the plectrum.

With this in mind, let us get on to the construction of our pick-up unit.

First you will require a permanent magnet of the "U" pattern—the magnet from an old "Blue Spot" loudspeaker will be found to be ideal.

Two pole-pieces (marked "A" in Fig. 1 on next page) are designed to fit on top of the magnet ends by means of the plates "B." Actual measurements cannot be given because it is necessary to make sure that the strings come over the pole-pieces—the 1st and 2nd strings over one, and the 3rd and 4th strings over the other.

The angle pieces "C," are cut from the solid, and the pole-pieces "A" are cut from the waste from these. The slots "F," in plates "B," are made to fit the tongue on the pole-pieces, which are then riveted over; care being taken to see that the pole-pieces themselves are at perfect right angles to the strip. The completed parts are then riveted to the angle pieces "C."

The two coils can be purchased from a radio shop, or the coils from an old pair of earphones employed. Here it should be mentioned that the

pole-pieces are made to fit the coils—therefore before shaping the pole-pieces it is advisable to secure the coils.

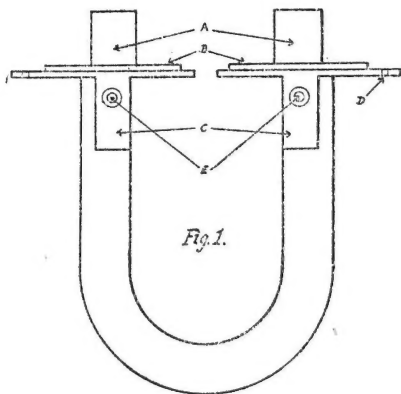


Fig. 1.—Details of construction before fitting coils.

The coils are connected in *series* by soldering the *end* of one to the *start* of the other. It should be seen that the joints are insulated so they cannot short-circuit through any of the metal work. When this is done, two wires will be left, the start of the one coil and the end of the other. These form the output of the unit, and they should be lengthened by joining on, say, a foot (or eighteen inches) of flexible wire.

The fixing of the completed assemblies is done by means of the part "C"; the hole "E" coming opposite the hole in the magnet ends.

One important point to watch when fixing the

pole-piece sections to the magnet is the need for the bed plate "C" to *bed right down* on the surface of the magnets. No gap of any kind or unevenness must exist between the two faces, otherwise the pick-up properties of the pole-pieces will be reduced.

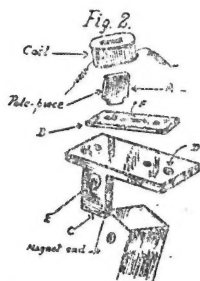


Fig. 2.—How each piece is fitted to each other on end of magnet.

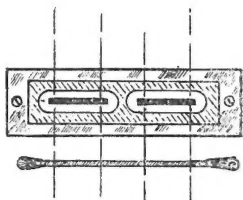


Fig. 3.—How completed unit is fitted in front of bridge.

An old zither-banjo is the ideal instrument to turn into an electric banjo. Remove all the metal work from the hoop (including the vellum) and inside the wooden rim fix eight small blocks of wood at regular intervals inside the hoop and about $\frac{1}{2}$ inch from the top edge. Then cut a circular piece of five-ply wood to fit comfortably *inside* the banjo hoop so that it rests on the wood blocks. (Later this is secured to the blocks by small wood screws.)

Then mark the position of the bridge (see section on BRIDGES), and then about an inch from the bridge position (towards the finger-

board) cut an aperture in the plywood the width of plates "C," but half an inch less in width. This can be done by lightly scribing the required outline and then drilling a series of $\frac{1}{8}$ -inch holes round the *inside* of the outline. With a sharp chisel it is possible to carefully cut through the wood between the holes and eventually square up the opening thus formed.

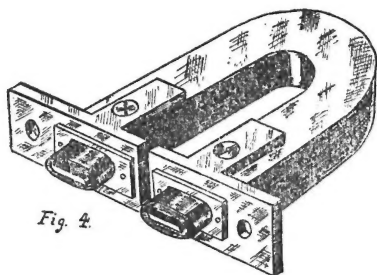


Fig. 4.

Fig. 4.—Showing what completed unit should look like.

Then make a plate (of aluminium or other metal) the width of plate "C" but about $\frac{3}{4}$ -inch longer, with an aperture for the two pole-pieces to push through, and in this plate drill two holes to correspond with holes "D."

Holding the completed unit under the circular piece of plywood, drop the metal plate over the top and clamp them together by means of small bolts and nuts through holes "D."

By using longer bolts and passing these through coiled springs the unit can be made so that the distance between the pole-pieces and the

strings can be adjusted for volume of pick-up power.

The two wires from the unit are then soldered to a single-circuit jack, which is then fitted into a suitable hole drilled in the body of the instrument near the tailpiece.

For an amplifier, you can use an ordinary radio set, the lead from the jack in the instrument being connected to the pick-up terminals at the back of the radio.

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